



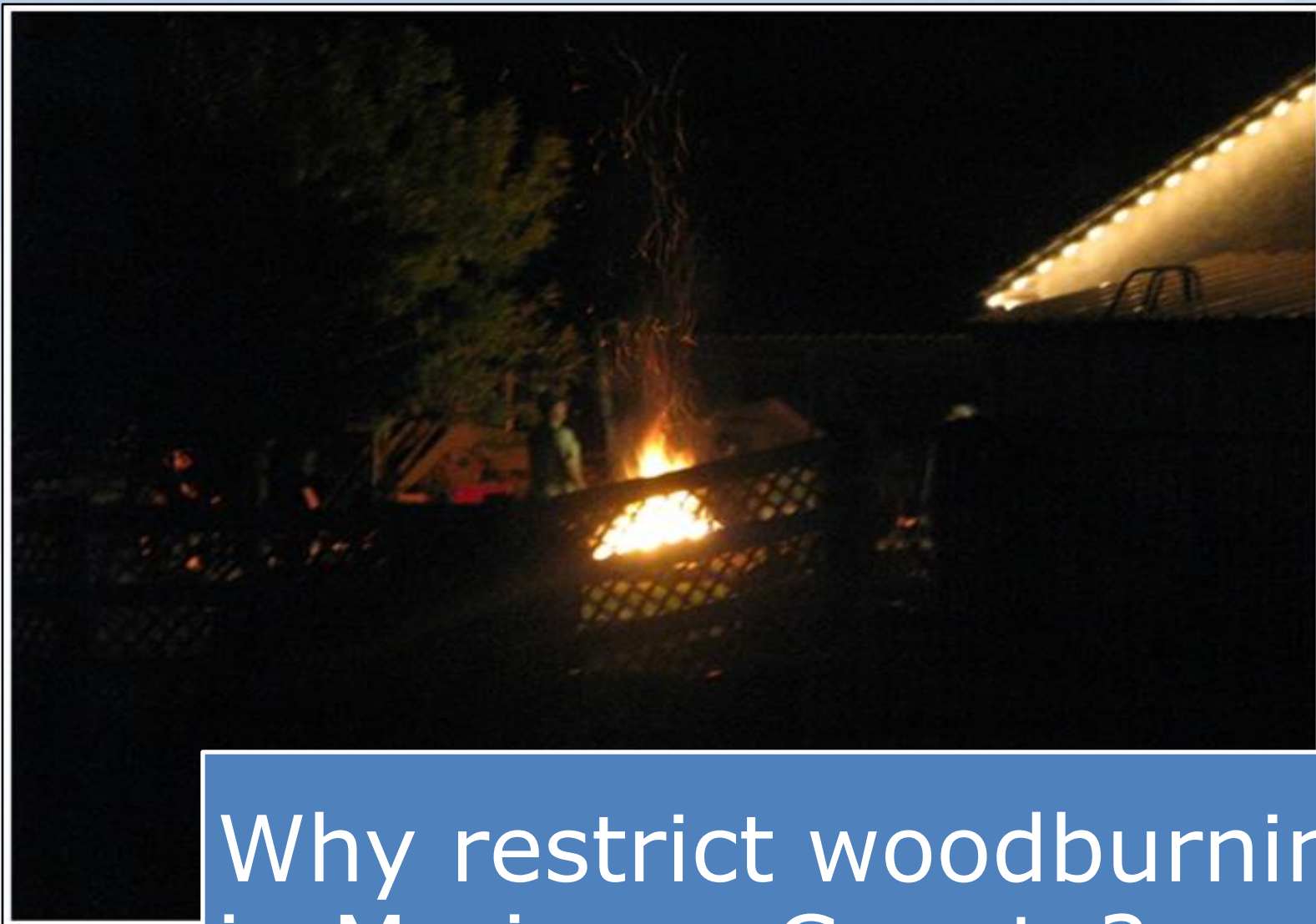
Woodburning Restrictions in Maricopa County

(Rule 314 and Ordinance P-26)

Presented by
MCAQD Compliance Division

Outline

- Haze
- PM_{2.5} and PM₁₀
- Inversions
- Health Effects
- No Burn Day
- Health Watch & HPA
- AQI
- Quick Facts
- Rule 314
- P – 26
- Rule 318
- MCAQD Response
- Public Outreach



Why restrict woodburning
in Maricopa County?

During the winter months, a combination of woodburning (PM_{2.5}), stagnation and an inversion create valley haze.



12/25 10:10AM

Valley Haze

Live Camera Sites

- ☐ South Mountain
- ☐ Estrella Mountains
- ☐ White Tank Mountains
- ☐ Camelback Mountain
- ☐ Superstition Mountains

Phoenix Region Visibility Index

Current Index

29

[?](#) Details

EXCELLENT

GOOD

FAIR

POOR

VERY POOR



1/1 10:15AM

www.phoenixvis.net

South Mountain Image Spectrum: Excellent Visibility

Sunday, March 9, 2014, 10:00am



What is in haze and how is it formed?



Haze

Extremely small particles, **particulate matter** 2.5 microns and smaller, are the principal cause of poor visibility.

Each particle can float in the atmosphere for days.

Nitrogen dioxide and **sulfur dioxide** gases from burning of all types of fuels react with other gases to form particulate matter.

The brown color is mostly attributable to soot.

Differences between PM_{2.5} & PM₁₀



Fine particles

- Particles less than 2.5 microns in diameter are called "fine" particles.
- Sources of fine particles include all types of combustion, including motor vehicles, power plants, fine dust, **residential and commercial wood burning**, forest fires, agricultural burning, and some industrial processes.

Coarse particles

- Particles between 2.5 and 10 micron in diameter are referred to as "coarse."
- Sources of coarse particles include crushing or grinding operations and dust stirred up by vehicles traveling on roads.



Particulates in Focus

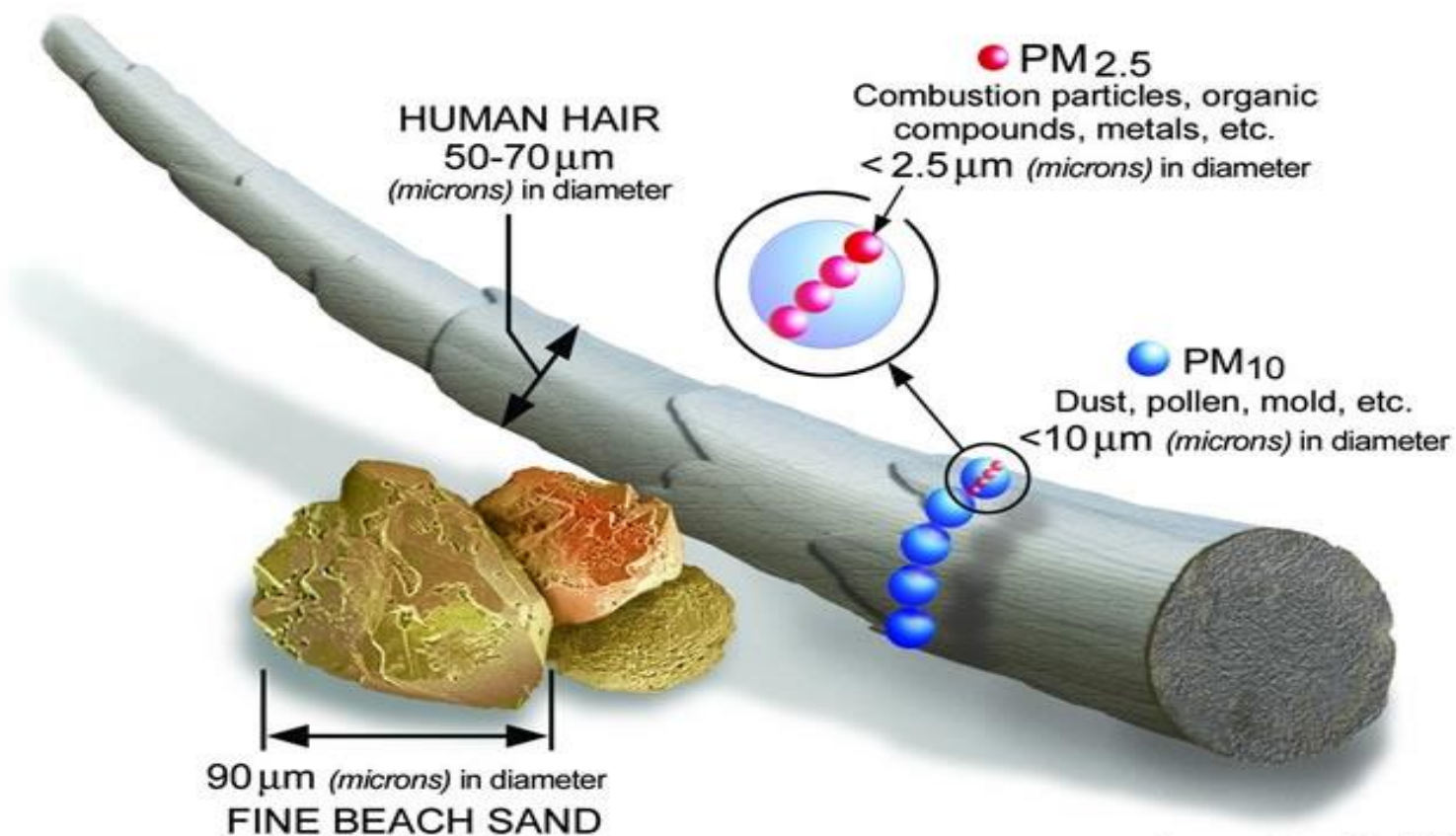
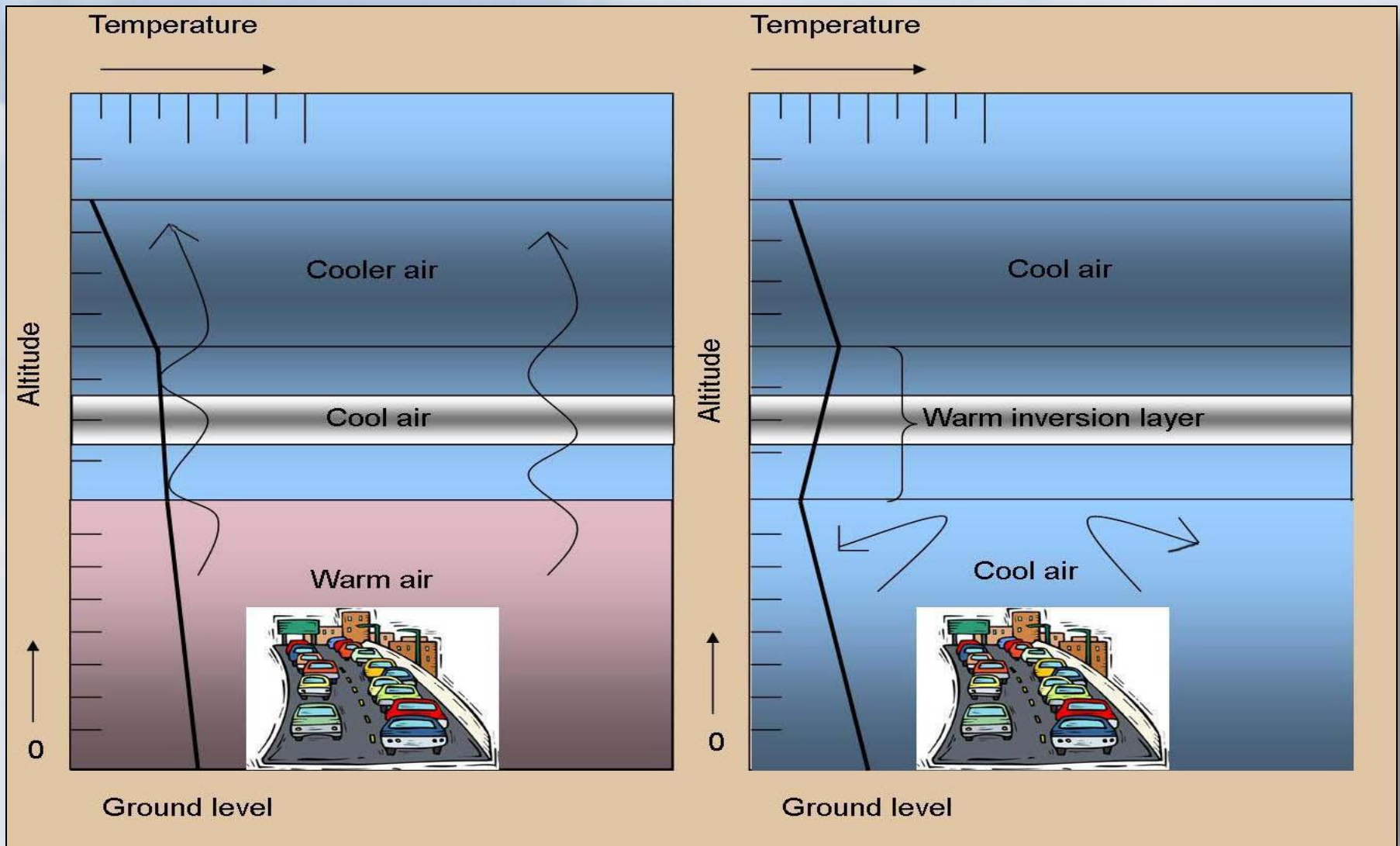


Image courtesy of the U.S. EPA

Inversion



Inversions

Evening



Every evening after sunset the surface of the land cools off more rapidly than the air above.

As a result, **fine particles** and gases produced that day are trapped under the inversion.

Early Morning



At the same time, a mass of cooler air slides down from the mountains, pushing the pollution across the valley from east to west.

Mid-Morning



After several hours (or days), the haze layer will rise, as the temperature rises and the inversion lifts.

Afternoon



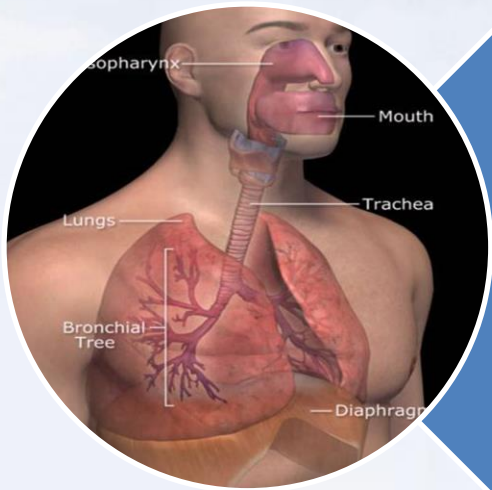
Around noon the direction of the air flow in the valley reverses, as the relatively warmer air makes its way from west to east, moving up toward the mountains.

Why do we care
about exposure to
particulate
matter?

Health Effects



Numerous studies link particle levels to increased hospital admissions and emergency room visits.



Long-term exposures have been associated with problems such as reduced lung function, development of chronic bronchitis, and even premature death from heart or lung diseases.

Health Effects

Short-term exposures to particles (hours or days) can do the following:

Aggravate lung disease.

Cause asthma attacks and acute bronchitis.

Increase susceptibility to respiratory infections.

People with heart disease, short-term exposures have been linked to heart attacks and arrhythmias.

Sensitive Groups Most at Risk

May experience health effects earlier and at lower concentration.



The **Elderly**, studies estimate tens of thousands of elderly die prematurely each year from exposure to ambient levels of fine particles.



Individuals with **Preexisting Heart/Lung Disease**.



Children

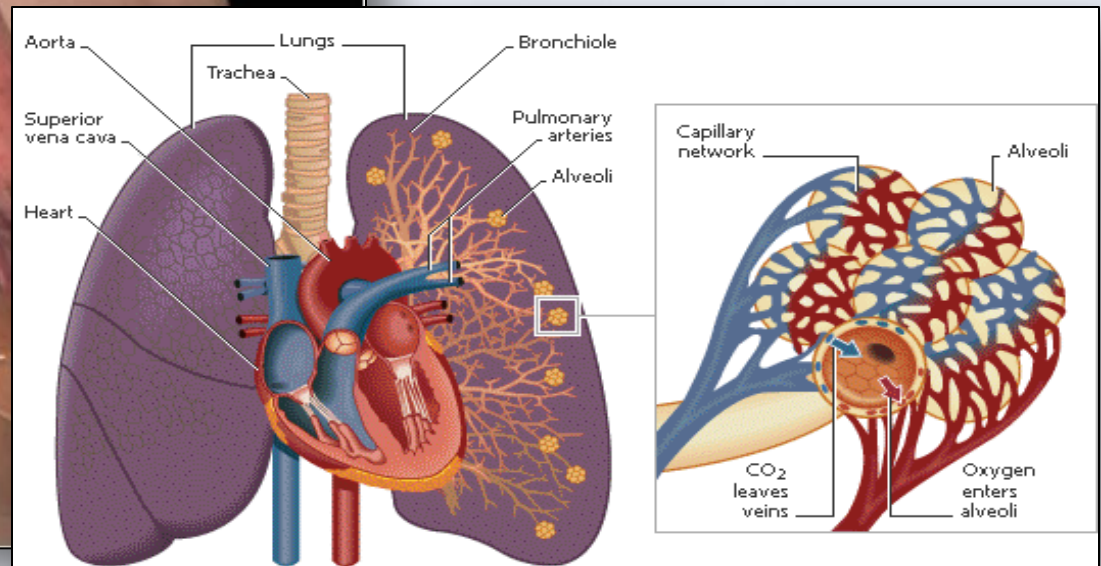
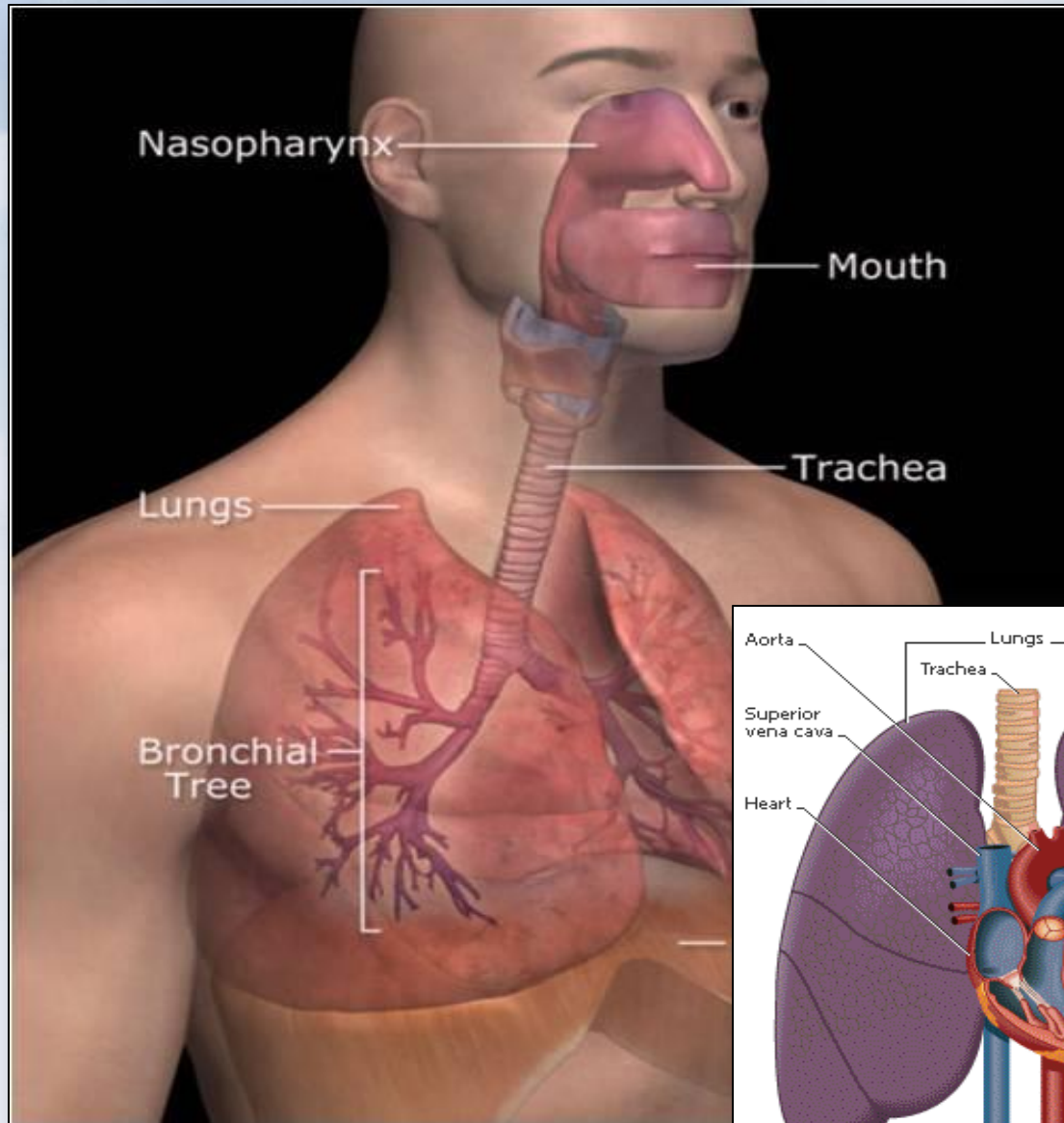
Children's respiratory systems are still developing, so they are more susceptible to environmental threats.



Asthmatics and Asthmatic Children

14 Americans die every day from asthma, a rate three times greater than just 20 years ago.

Where do the particulates end up?



What is a No Burn
Day and how does
it affect us?

No Burn Day



Residents and commercial establishments must refrain from using woodburning fireplaces, woodstoves and outdoor fire pits.



When ADEQ issues a Health Watch or High Pollution Advisory (HPA) for PM₁₀, PM_{2.5}, or Ozone, MCAQD will declare a "No Burn Day" from midnight to midnight.

Health Watch & HPA

Health Watch- means the highest concentration of pollution **may approach** the federal health standard.

High Pollution Advisory (HPA) - means the highest concentration of pollution **may exceed** the federal health standard.

Air Quality Index

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.
Hazardous	301 to 500	Health alert: everyone may experience more serious health effects

Monitoring Sites 2013/2014 Burn Season

Site	Date	PM2.5 ($\mu\text{g}/\text{m}^3$)
South Phoenix	12/24/13	44.3
	12/25/13	58.2
	12/31/13	56.5
	1/1/14	101.7
West Phoenix	12/25/13	52.1
	12/31/13	53.1
	1/1/14	170.8
Durango	12/25/13	55.9
	1/1/14	56.5
Glendale	1/1/14	50.1
Mesa	1/1/14	43.0
Tempe	1/1/14	44.0

Federal Health Standard 24 hours = 35 $\mu\text{g}/\text{m}^3$

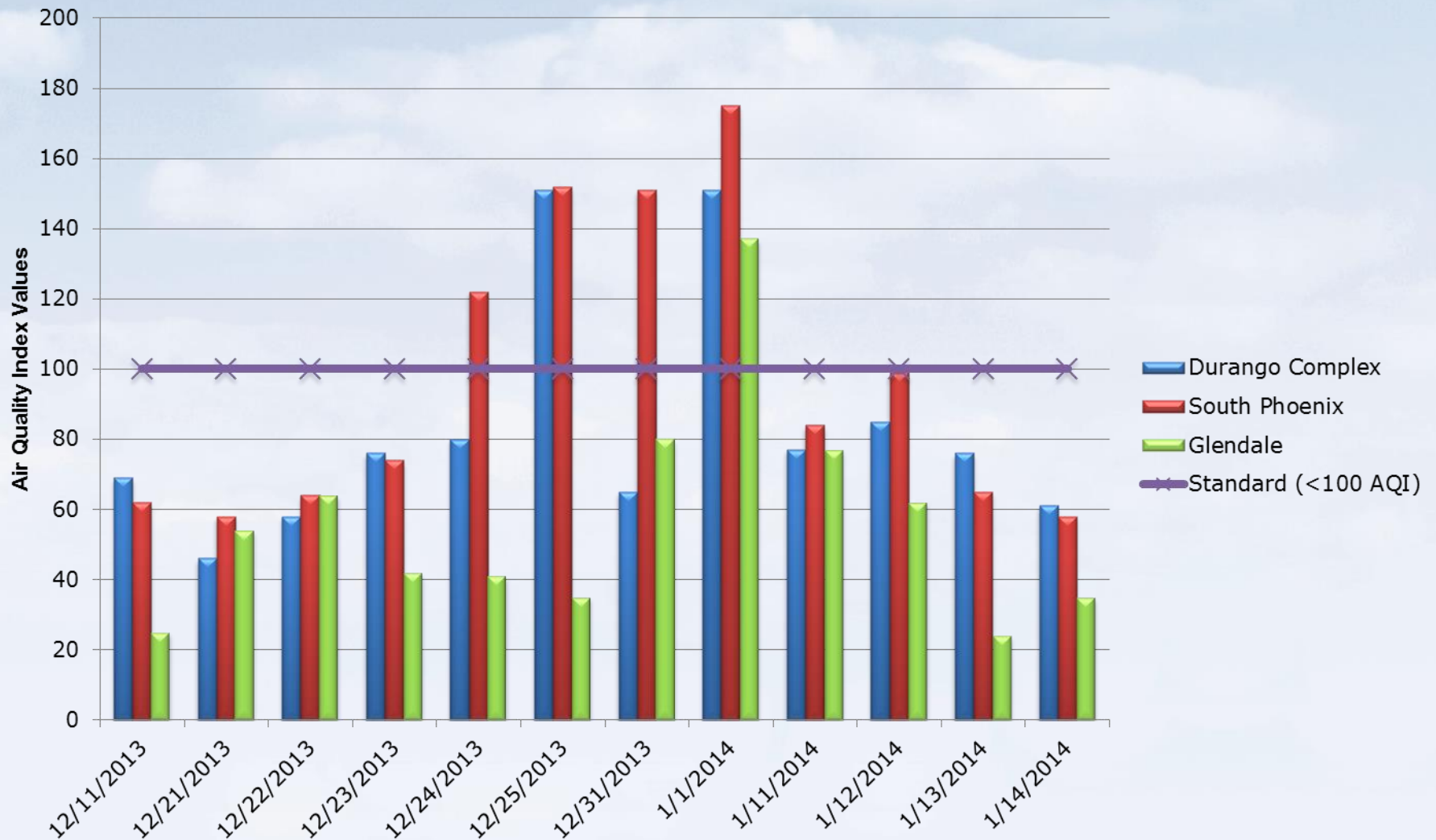
No Burn Day Quick Facts

2013 Quick Facts

- Maricopa County has exceeded the current PM_{2.5} standard four of the past nine years at the West Phoenix site on New Year's Eve, averaging an AQI value of 105.
- The maximum one-hour concentration on New Year's Eve occurred between 11pm and midnight on four of the last nine years.
- The West Phoenix site has exceeded the current PM_{2.5} standard eight of the last nine years on New Year's Day averaging an AQI value of 152.
- The maximum one-hour concentration on New Year's Day usually occurs before 3am.
- **This suggests that New Year's Day exceedances are due to carry-over smoke from New Year's Eve and continuing festivities after midnight, including consumer fireworks.**

PM2.5 Levels – 2013/2014

No Burn Days PM2.5 Levels, 12/11/2013-1/14/2014



Summary: No Burn Season 2013-2014

No Burn Campaign

Number of No Burn Days this Season



74 Stakeholders & partners from across the valley



Avoided Non-Attainment



Met the Annual Federal Health Standard for PM-2.5



Annual PM-2.5 concentrations 9% lower than 2012

No Burn Season Oct. 01- Feb.01

Billboard Impressions



App Downloads



Website Hits



What rules apply
to burning in
Maricopa County?



Rule 314 – Rule 314 is applicable to any open outdoor fire and burning in indoor fireplaces at commercial and institutional establishments.

Applicability of Rule 314



Prohibition – Open Outdoor Fires:

It shall be unlawful for any person to ignite, cause or permit to be ignited, allow, maintain any open outdoor fire within the limits of Maricopa County...



Burn Permits are Required:

- Open outdoor fires declared necessary by County Agricultural Agent.
- Control of weeds for the prevention of fire hazards declared necessary by public official.
- Fire fighting training.
- Burning of agricultural ditchbanks and fence rows.

Rule 314



Even after a burn permit is issued, the person conducting the fire **must contact both the fire department and the Air Quality Department** to obtain permission to burn for each day.


Exemptions

Rule 314

Does not apply to:

- Food preparation devices
- Barbecues
- Mesquite grills
- Gaseous fuels
- Orchard heaters
- Proper disposal of flags
- Fireworks





Ordinance P-26 – Residential woodburning
on No Burn Days Originates from Arizona
Revised Statutes: A.R.S. Title 11 Article 4
Air Quality Section 871 Emissions Control

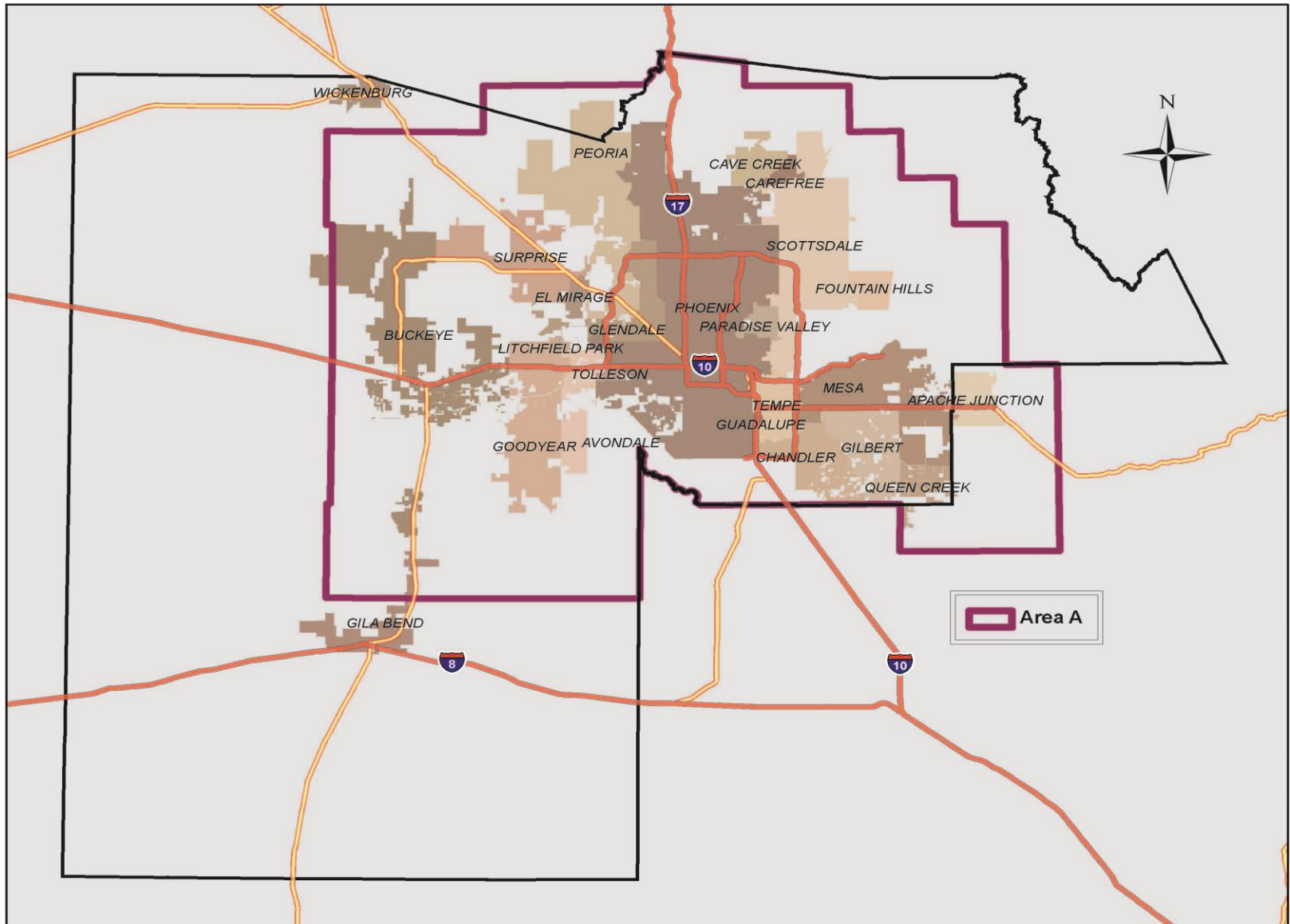
P-26 Residential Woodburning

Restrictions



During a declared restricted-burn period (No Burn Day), a person shall be restricted from operating a residential wood burning device, an outdoor fire pit, a wood burning chiminea, or similar outdoor fire in sections of Area A.

Area A



P-26 Exemptions

Annual Exemptions: Sole Source of Heat

- No NEW exemptions issued after December 31, 1995.
- Exemptions may be renewed.

Temporary Exemptions: Sole Source of Heat

- Issued for 150 days, if applicant qualifies for economic hardship.

Emergency Exemptions:

- Heating system inoperable.
- Heating system involuntarily disconnected by utility company.

Inadequate Alternate Source of Heat:

- When the alternate source of heating is inadequate.

RULE 318

Approval of Residential Woodburning Devices

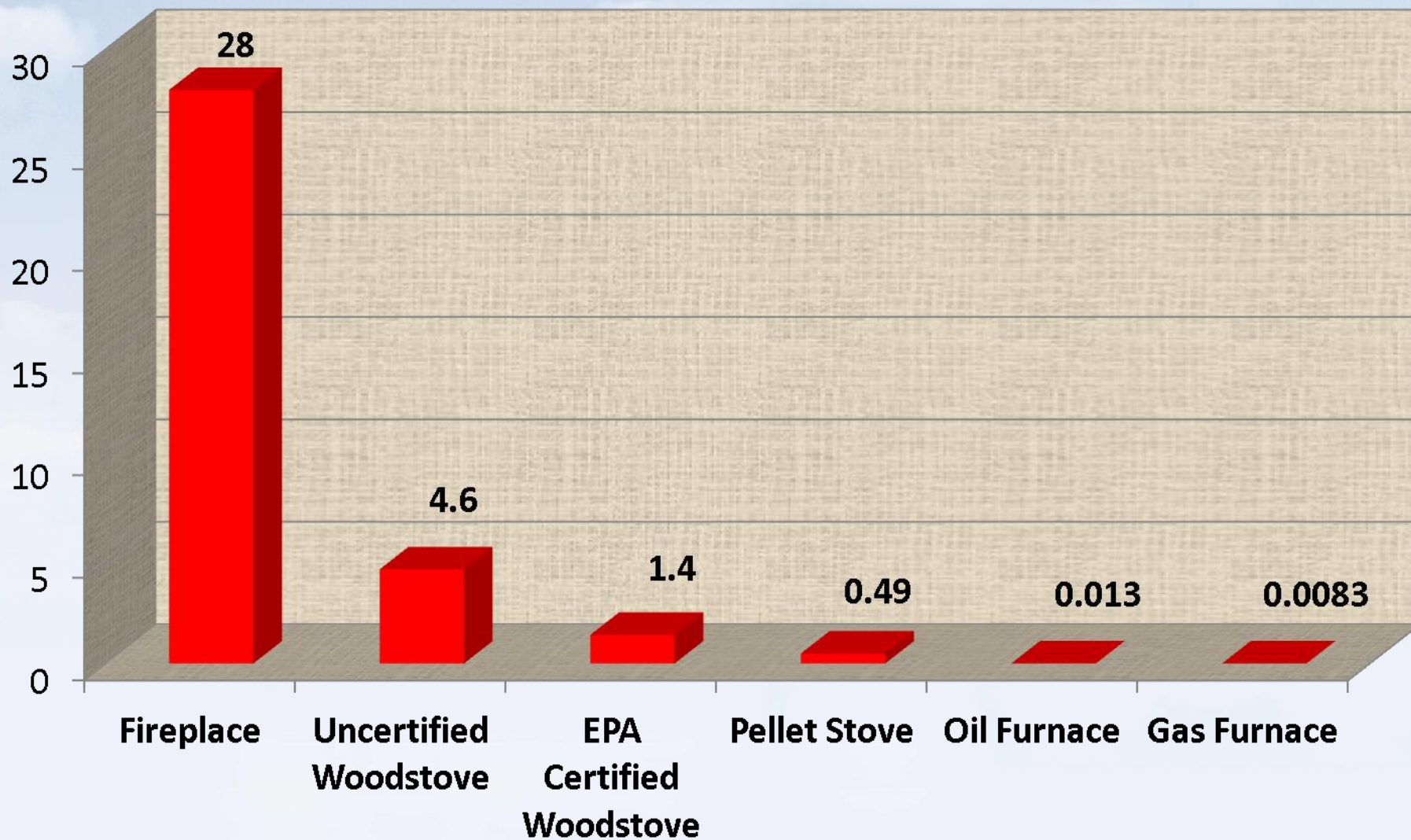


The following residential devices shall be approved for burning wood:

- A device that has been certified by EPA.
- Any pellet stove.
- Any gas burning hearth appliances.
- Any masonry heater or any other solid fuel burning device that meets performance standards.

PM-2.5 Emissions

Pounds of Fine Particles Emitted Per Million BTU Heat Output



MCAQD Response



How does the Air Quality Department respond to No-Burn Days?



How does one find out if it's a No-Burn Day?

Department Response



Citizen Complaints – Complaints are given highest priority.



Fireplace Patrol - Inspectors are sent into neighborhood areas that are likely to have homes with woodburning fireplaces.



Normal Inspection Activities – Inspectors will be on alert for smoke during normal daily activities.

Public Outreach Resources

CleanAirMakeMore.com

Mobile App

Sign Up for Text Alerts

Sign Up for E-Mail Alerts

Call **(602)506-6400** for a recorded message in English and Spanish.

NO BURN DAY? OUR AIR » MAKE THE COMMITMENT » NEWS & EVENTS » CLASSROOM » TOOLS/DOWNLOADS » ABOUT US »

ON NO BURN DAYS, DON'T BURN WOOD

DON'T LET OUR **AIR** GO UP IN SMOKE

This winter, don't let our air go up in smoke!

During the winter months, Maricopa County has higher levels of air pollution caused by woodburning smoke. Protect the health of those in Maricopa County; don't burn wood when a No Burn Day is in effect: [Get the latest No Burn Day status, air quality forecast and more.](#)

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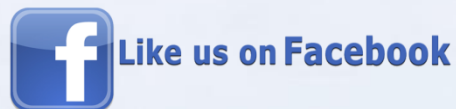
AIR QUALITY STATUS

- OK** to burn wood
- OK** to ride off highway vehicles
- OK** to use leaf blowers

TODAY'S FORECAST

Clear
88° High 65° Low
No winds blowing.

SIGN UP FOR ALERTS »



CLEAN AIR MAKE MORE June 5, 2010

SENSITIVE PEOPLE SHOULD LIMIT OUTDOOR ACTIVITY

LEARN MORE »

- woodburning
- leaf blowers
- off-highway vehicles

HPA Did you know a Health Watch or HW means the highest concentration of pollution may approach the federal health standard?

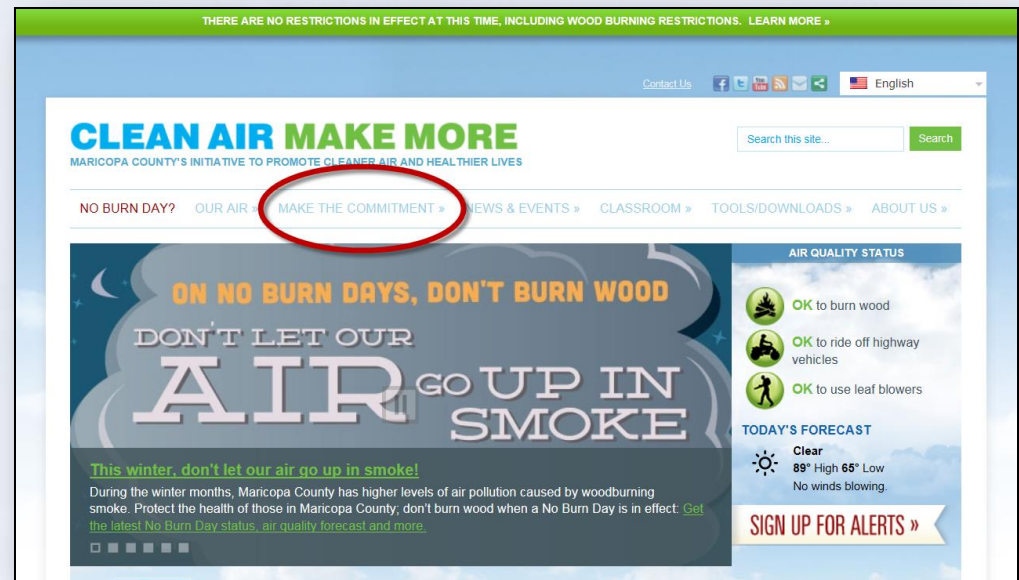
[CLEANAIRMAKEMORE.COM](#)

Public Outreach Resources

If you'd like to receive HPA & Health Watch notifications, you may register at:

CleanAirMakeMore .com

Click on:
"MAKE THE
COMMITMENT"



Clean Air Make More Mobile App



Current Restrictions



Forecast



AQI Index



Report a Violation



More Options

Website Woodburning Toolkit



Article Feeds

- [Approx. 100 words & 250 words](#)

Artwork

- [No Burn Day? Don't Burn!*](#)
- [Today is a No Burn Day!](#)
[Don't Burn Wood!*](#)
- [Up In Smoke poster](#)
- [What You Can Use flyer](#)
- [ADEQ No Burn flyer*](#)

Media

- [Audio PSA's](#)

Misc

- [Winter No Burn coloring book](#)

**Available in Spanish*

Check Before You Burn

Call the Burn Line

(602)506-6400

Or visit:

CleanAirMakeMore.com

We All Need to Get Involved!



Policymakers



Stakeholders

Healthcare Advocates
Environmental Advocates



General Public



Industry

Trade Organizations
Businesses



Today is a No Burn Day
Don't Burn Wood!

CleanAirMakeMore.com

Thank You for not burning on a
No Burn Day!